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Cryptohalictoides spiniferus Viereck.

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EXOTIC BUTTERFLIES.

ENTOMOLOGICAL NEWS

AND

PROCEEDINGS OF THE ENTOMOLOGICAL SECTION

ACADEMY OF NATURAL SCIENCES, PHILADELPHIA.

VOL. XVI. FEBRUARY, 1905. No. 2.

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Our frontispiece this month was made direct from specimens in the collection of the Academy of Natural Sciences of Philadelphia, by the Photo-chromotype Company of Philadelphia. This is one of the largest companies in America doing this line of work. The specimens represented are as follows: *Eronia phocæa* Felder, from the Philippines. *Cyrestis elegans* Boisduval, from Madagascar. *Catagramma cynosura* Doubl.-Hew., from Brazil. The butterflies represented on Plate I, in the January NEWS were *Callosune zoe* Grandid, from Madagascar. *Callithea optima* Butl., from Peru. *Catagramma atacama* Hew., from Ecuador.

Two New Butterflies from Mt. Tamalpais, Calif.

By FORDYCE GRINNELL, JR., Palo Alto, Calif.

Satyrus behrii n. sp.

♂ expands 43 mm. Upper surface entirely Prout's brown, darker towards inner margin (probably somewhat faded from the age of the specimens). Primaries have two ocelli placed in the usual position, equally distant between the costa and inner margin; the upper ocellus is 2.5 mm. in diameter, of a very dark brown or black, has a small, distinct, white, central dot, and is surrounded by a ring of lighter color than the

adjacent area. The lower ocellus consists of a single black spot, rather indistinct, and without white central point and surrounding ring. A very faint, submarginal black line and a marginal streak ; secondaries same as primaries, an ocellus in the same position as the second one on primaries and resembling it.

Underside : primaries woodbrown but much mottled with other shades, many irrorations of darker color ; submarginal to the two ocelli is a wavy, distinct brown band formed into crescents toward the inner margin ; the upper of the two ocelli is like the one on the upperside, the lower is exactly like it only somewhat smaller. Between the ocelli and the margin is a comparatively broad, dark brown band ; a marginal and submarginal distinct lines close together.

Secondaries : more mottled with grayish than the primaries ; a very broad fascia in the center of the wing, extending from costa to base parallel to outer margin ; the row of six ocelli placed in the usual position, the first is rather small, with a minute white dot in the center ; next is much larger with distinct white central point ; next consists of a small, black point only ; next is a small one, with a distinct white central point ; next is as large as the second and like it ; the last one like the first. These ocelli are very constant, more so than in any other species. Between this row and outer margin is a brown band corresponding to that of the primaries ; a marginal and submarginal fine, distinct streaks. Fringes all brown.

♀ expands 46 mm. Resembles the ♂ in all particulars except the following : the two ocelli on upperside of primaries are exactly alike and are like the upper one of the male. The one on the secondaries is larger and with a distinct, white central point.

Underside : the two ocelli on the primaries are slightly large and of same size. The row of ocelli on secondaries are practically like those of the male.

Habitat : Mt. Tamalpais, Marin County, California. Right across the bay from San Francisco, collected by Dr. Behr many years ago, probably between 1860 and 1870.

Types, 2, ♂, 2 ♀, collection California Academy of Sciences. Several cotypes.

This species is readily distinguished from any other by its small size, darker color and very distinct markings. Named for Hans Herman Behr, the beacon light of Californian Lepidopterology, whose name will be held in strong remembrance as long as Californian butterflies are collected and studied.

Thanaos pernigra n. sp.

Upperside : primaries entirely blackish-slate, with a very thin sprinkling of grayish hairs ; three very small, white dots arranged diagonally, in the

costo-apical part of the wing. Secondaries: entirely seal-brown, with long hairs along the inner margin and basal part of wing. Underside of both wings entirely Van Dyke brown; the three costo-apical white spots visible through the wing. Abdomen and thorax same color as adjacent parts of the wings. Palpi clothed with long hairs. Antennæ entirely of same color as the primaries on the upperside.

Habitat: Mt. Tamalpais, Marin Co., California. Collected by Mr. F. X. Williams, May 19, 1904, in Mill Valley, on the slopes of Mt. Tamalpais. Only a few were captured but others were seen; the species is no doubt extremely local in distribution.

Type 1 ♂, to be deposited in the collection of the California Academy of Sciences.

This species is very distinct from any other by its small size, and very dark, almost uniform color. Owing to a curious asymmetry in the clasps of the single male I possess, the description of these organs will have to be deferred till more specimens are available.

Canadian Cerambycidae.

The species of the past season.

By G. CHAGNON, Montreal, Canada.

Acmæops proteus Kirby. Montreal, 14, vii. Entirely black.
Asemum mæstum Hald. St. Hilaire, Que., 24, v. under pine bark.
Callidium janthinum Lec. Val Morin, Que., common 10 to 25, vi.
Clytanthus ruricola Oliv. Common; vi and vii.
Cirtophorus verrucosus Oliv. St. Hilaire, Que. 24, v.
Callimoxys sanguinicollis Oliv. St. Hilaire, Que. ♂ and ♀ 24, v.
Criocephalus agrestis Krby. Montreal, vii, viii. They are generally taken at the electric lights.
Desmocerus palliatus Forst. Montreal, 48 specimens on Elder; 28, vi.
Euderces picipes F. St. Hilaire, Que., 1, vii.
Graphisurus fasciatus DeG. Montreal, A few chrysalids from beech.
Hoplosia nubila Lec. Montreal 18, vii. This species breeds in Linden.
Hyperplatys aspersus Say. Montreal, vi and vii. Taken several specimens on dead branches of willow, in which it must breed.
Leptura nitens Forst. Montreal, 27, vi.
Leptura exigua Newm. Common from 24, v to 15, vi.
Leptura hæmatites Newm. Montreal, 12, vi.
Leptura biforis Newm. St. John's, Que. 8, vii.
Leptura canadensis F. Common, vii.
Leptura vittata Germ. Common, vi, vii.

Leptura lineola Say. Common, vi, vii.
Leptura pubera Say. Common, vi, vii.
Leptura proxima Say. St. Hilaire, Que., St. John's, Que. vi, vii.
Leptura mutabilis Newm. Montreal, 10, vi.
Leptura chrysocoma Kirby. Val Morin, Que., common 19, vi.
Lepturges querci Fitch. Montreal, 25, vii.
Monohammus confusor Kirby. Montreal, 23, viii.
Neoclytus muricatulus Kirby. Lévis, Que., 12, viii. On spruce logs.
Oberea bimaculata Ol. Common on raspberry, 8, vii.
Obrium rubrum Newm. Montreal, 25, vii.
Parandra brunnea F. Montreal, 25, vii.
Pogonocherus mixtus Hald. Montreal, 14, vii, on dead branch of willow.
Pachyla monticola Rand. Val Morin, Que., 17, vi.
Psenocerus supernotatus Say. Common on wild grape vine, 12, vi.
Phymatodes amœnus Say. Montreal, 12, vi. On wild grape vine.
Stenosphenus notatus Ol. Montreal, 12, vi.
Saperda puncticollis Say. Montreal. On woodbine 12, vi.
Saperda mutica Say. Montreal; several specimens on willow, 14, vii.
Saperda lateralis F. Montreal, 12, vi.
Saperda vestita Say. Montreal, chrysalids from linden.
Tragosoma harrisii Lec. Montreal. One specimen at electric lights, 17, vii.
Typocerus velutinus Ol, Common, vii.
Tetraopes tetraophthalmus Forst. Common, vii.
Toxotus trivittatus Say. Montreal. Common, 12, vi.
Xylotrechus undulatus Say. Lévis, Que., 12, viii, on spruce logs.

The above species, which number 44, were all taken during the past summer.

I was at Quebec in August last and took advantage of my trip to examine the material in some local collections there. Amongst the most important species I saw, were the following:

Rhopalopus sanguinicollis Horn. This species seems to occur frequently at Quebec and Lévis.

Phymatodes maculicollis Lec? There is a specimen of *Phymatodes* in the collection of Abbé Roy, Lévis, which I think can be referred to *maculicollis*. I regret that I did not have the opportunity of studying it more fully.

Piodes coriacea Lec. This species is in the Provancher collection without locality label. I have seen specimens from Rigaud, Que.

Monohammus marmorator Kirby. I saw several specimens of this species in collections at Quebec and at Lévis. I noticed, in the Laval University collection, specimens of this species labelled *titillator* F.

Saperda cretata Newm. Two specimens in the Laval University collection without locality label.

Records of some Paraguayan Orthoptera with the Description of a New Genus and Species.

By JAMES A. G. REHN.

The following records have been made from a small collection of Orthoptera taken at Sapucay, Paraguay. The material is the property of Mr. Morgan Hebard of Chestnut Hill, Philadelphia.

Family BLATTIDÆ.

Ischnoptera marginata Brunner.

One female (December 20, 1901).

Giglio-Tos has recorded this species from northern Argentina and the Bolivian Chaco.

Ischnoptera vilis Saussure.

Two males (one November 30, 1901).

Family MANTIDÆ.

Brunneria brasiliensis Saussure.

One male.

Family ACRIDIDÆ.

Ossa bimaculata Giglio-Tos.

One male and one female. October 31, 1902 and January 27, 1903.

This species was described from Resistencia nel Chaco, Argentina.

Tropinotus discoideus Serville.

Two females.

These specimens agree with a female individual from Paraguay referred to *discoideus* by Giglio-Tos, and a male and female from Brazil and Rio Grande do Sul received from Dr. Saussure. One of the Sapucay specimens is blackish brown in color with the maculations rather faint, the other is wood brown, the anal area of the tegmina pale, the maculations of the tegmina barely visible. Originally described from "Bresil," this species has since been recorded from Buenos Ayres and the province of Jujuy, Argentina, Caiza in the Chaco of Bolivia and Asuncion, Paraguay.

Tropinotus regularis Bruner.

One male.

This specimen was examined by Prof. Bruner, who pronounced it a representative of a species at present undescribed and which he proposed to call *regularis*. In appearance it is quite distinct from the other forms of the genus, but I prefer to leave all remarks, however desirable, aside pending the description.

Elæochlora viridicata (Serville).

One female.

This is inseparable from females from Carcarana, Argentina, except that the caudal tibiæ and tarsi are not washed with pinkish red, but are uniform dull greenish in color.

Chromacris stolli (Pictet and Saussure).

One male, one female.

While this species has been recorded from a number of localities in northern Argentina, this is apparently the first record from Paraguay.

Zoniopoda omnicolor (Blanchard).

One male (February 18, 1902), one female.

This beautiful species is here recorded from Paraguay for the first time. The Sapucay specimens are inseparable from individuals from Carcarana, Argentina.

Zoniopoda iheringi Pictet and Saussure.

One male (October 29, 1902), one female.

These specimens have been compared with an authentic female specimen from Rio Grande do Sul collected by Dr. Ihering and presented by Dr. Saussure. Except that the Paraguayan female is of smaller size, no important difference can be detected. In the male the caudal femora are obscurely bi-annulate with blackish fuscous.

Stenopola puncticeps (Stål).

One female (December 19, 1902).

This species has been recorded from Caiza and San Francisco in the Bolivian Chaco; San Lorenzo in Jujuy, Argentina; Resistencia in the Argentina Chaco and Rio de Janeiro, Brazil.

Aleuas vitticollis Stål.

One male (March 7, 1903).

This species was described from Sao Leopoldo, Rio Grande do Sul, Brazil, and Montevideo, Uruguay.

Aleuas gracilis Stål.

One male (March 7, 1903).

The difference between this species and *A. vitticollis* is very apparent on comparing them, the slenderer build, more produced and acute fastigium and the form of the pronotum are the principal characters which readily distinguish *gracilis* from *vitticollis*. The original locality was Brazil.

ZYGOCLISTRON* n. gen.

Allied to the *Aleuæ* and *Vilernæ*, partaking of characters of both, but probably more closely related to the former and the genus *Paraleuas* Giglio-Tos in particular.

Form elongate, slender. Head with the fastigium acute, sharply carinate, excavated; frontal costa regularly expanding from the base of the antennæ to the clypeus; facial carinæ diverging to the same extent and parallel to the costa. Pronotum rugoso-tuberculate; median carina distinct, intersected thrice; ventral margin of the lateral lobes very slightly emarginate. Intervals between the mesosternal and metasternal lobes exceedingly narrow. Tegmina reaching the apex of the abdomen; area between the discoidal and ulnar veins with numerous transverse veins mesad. Posterior femora with very slight dentate points on the dorsal carina; tibiæ with eight spines on the external margin; second tarsal joint not quite half as long as the metatarsus. Subgenital plate compressed, produced into a moderately recurved process; supra-anal subequal proximad, acuminate distad; cerci long, slender, parallel in the proximal half, sharply incurved at the middle, the apex directed caudad and acute.

Zygoclistron trachystictum† n. sp.

Type: ♂; Sapucay. Paraguay. March 20, 1902. Hebard collection.

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*Ζυγον *yoke*, πλειτσρον *bar*.

†Τραχυς *rough*, στικτον *punctured*.

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2

3

ZYGOLISTRON TRACHYSTICTUM n. gen. and sp. Type, fig. 1, lateral view; fig. 2, cephalic view of head; fig. 3, dorsal view of abdominal appendages.

Head rather large, occiput rounded and slightly elevated above the pronotum; vertex slightly descending, interspace between the eyes distinctly exceeding the greatest width of the frontal costa; fastigium slightly descending, acute, the marginal carinæ sharp, shallowly and broadly excavated, foveolæ large, trigonal, facing dorsad; frontal costa a simple sharp carina immediately below the fastigium, dividing at a line with the upper base of the antennæ, carinæ regularly and very distinctly diverging to the clypeal margin, shallowly but wholly sulcate; accessory facial carinæ distinct and diverging at the same angle as the margins of the frontal costa; eye ovate in outline, quite prominent, very slightly shorter than the infra-ocular portion of the genæ; antennæ slightly exceeding the head and pronotum in length, slightly depressed. Pronotum narrow, subequal, rugoso-tuberculate except the ventral portions of the lateral lobes which are rugose; cephalic margin rotundato-angulate, caudal margin obtuse-angulate, the angle narrowly rounded and the margin slightly sinuate; median carina distinctly sub-cristate on the prozona and severed by each sulcus; no lateral carina present, a moderately marked shoulder present on the metazona; inferior margin of the lateral lobes slightly sinuate cephalad and caudad. Prosternal spine short, compressed, blunt, directed caudad. Interspace between the mesosternal lobes very narrow, the lobes sub-contiguous; interval between the metosternal lobes cuneiform, the lobes sub-contiguous at the narrowest (caudal) point. Tegmina not exceeding the apex of the abdomen, rotundato-truncate apically, discoidal field proximad irregularly reticulate, mesad with the portion between the discoidal and ulnar veins occupied by numerous parallel cross veins, those of the medio-discoidal area more numerous than those in the medio-ulnar section; no intercalary vein present. Wings equal to the tegmina in length. Last segment of the abdomen dorsal with triangular branches of the furcula; supra-anal plate equal proximad, acute and produced distad; subgenital plate produced, compressed, apical process recurved and exceeding the apical margin by a distance equal to half the length of the entire plate; cerci

elongate, narrow, straight and parallel proximad, at the middle with a short mesad curve, and near the apex with a distinct caudad bend, the apex acute and slightly depressed. Cephalic and median femora short, inflated, the tibiæ of the same limbs not exceeding the femora in length. Caudal femora slightly exceeding half the tegmina in length, tapering evenly but not gracefully to the genicular region, dorsal carina with several sub-obsolete dentiform serrations; tibiæ with eight spines on the external margin, ten or eleven spines on the internal margin, external apical spine present on one tibia and absent on the other; metatarsi over twice the length of the second tarsal joint.

General color ochraceous, the genæ, ventral part of the pronotum and the pleura gamboge yellow, a post-ocular streak, which is indistinct on the head and well marked on the pronotum and pleura, blackish; eyes and dorsal surface of pronotum tawny; antennæ with the apical half infuscate. Tegmina hyaline with a faint greenish yellow tinge, the costal region with the veins obscurely yellowish, the base of the discoidal field with several distinct quadrate spots of blackish, and the axillary field saffron yellow. Abdomen with the lateral face of each segment with a diagonal blackish marking, which in form is crudely oval. Limbs of the general color, the caudal femora with blackish blotches along the carinæ; tibiæ saffron yellow, washed with blackish at the very apex, spines blackish apically, those of the internal margin with the whole internal face blackish.

MEASUREMENTS:

Length of body,	39.	mm.
Length of pronotum,	7 5	"
Greatest width of pronotum,	4.5	"
Length of tegmina,	28.	"
Greatest width of tegmina,	4.5	"
Length of caudal femora,	16.5	"

The type only has been examined.

Schistocerca infumata Scudder.

One male (January 15, 1903), one female.

This species has only been recorded from Montevideo, Uruguay and Brazil. This species is closely related to *S. flavofasciata*, of which a pair from Demerara have been examined, and with it possesses a pale flavous bar of the proximal portion of the costal margin of the tegmina. The form of the cerci of this species is quite different from that seen in *S. flavofasciata*.

Dichroplus bergii Stål.

One female (January 27, 1903).

This specimen was compared with females from Rosario and

Carcarana, Argentina, received from Prof. Bruner, and one female (Resistencia nel Chaco, Argentina), received from Dr. Borelli.

Dichroplus exilis Giglio-Tos?

Two males (January 16, 1903, and March 9, 1902).

These specimens do not wholly agree with the original description of *exilis*, the caudal femora being greenish above and without any black except in the genicular regions, while the cerci are subequal in the incurved apical portion. They are readily separated from *D. elongatus* Giglio-Tos by the shorter and less produced subgenital plate, the broader fastigium and vertex as well as the coloration.

Scopas obesus Giglio-Tos.

One female.

This individual fully agrees with the original description. This species is only known from Paraguay, Asuncion being the type locality.

Osmilia violacea (Thunberg).

Two males (December 20, 1901 and February 20, 1903), and one female.

Recorded from Asuncion and Colonia Risso in Paraguay by Giglio-Tos.

Osmilia obliqua (Thunberg).

One female (July 26, 1901).

Recorded from Asuncion by Giglio-Tos, and also from Resistencia nel Chaco, Tala and San Lorenzo in Argentina, and San Francisco and Caiza in the Bolivian Chaco. Thunberg's original specimen was from Brazil, and the Stockholm Museum contains Rio Janeiro material mentioned by Stål.

Family TETTIGONIDÆ.

Isophya borellii Giglio-Tos.

One male (January 18, 1903).

This species has previously been recorded from Asuncion, Paraguay, and Santa Rosa, Salta, Argentina.

Hyperophora angustipennis Brunner.

One male (March 19, 1903), one female (March 20, 1902).

This species has been recorded from Salta and Cordoba provinces, Argentina.

Family GRYLLIDÆ.

Eneoptera surinamensis (De Geer).

One male (March 4, 1903), two females (May 9 and November 8, 1903).

Previously recorded from Guiana, Brazil and Peru.

On the Habits of Two Ichneumonid Parasites of the Bee Ceratina Dupla Say.

By S. Graenicher, Milwaukee, Wis.

During the summer of 1903 eggs and larvæ of an Ichneumonid were noticed in several nests of *Ceratina dupla*, a rather common bee in our region. I was thus enabled to study the life history of this parasite, and to obtain a number of mature insects, the latter emerging in the spring of the following year. Last summer while examining some nests of *Ceratina dupla* in search of additional material, a second Ichneumonid was found passing its larval stage in the nest of the bee, and of this species also mature insects were bred. These two Ichneumonids were sent to Mr. Henry L. Viereck, of Philadelphia, for identification, with the result that one of them was recognized as *Grotea anguina* Cress., while the other proved to be a new species, which Mr. Viereck has named and described as *Habrocryptus grænicheri* (Ent. News, Vol. XV, p. 333.) My sincere thanks are due to Mr. Viereck for his kind assistance in this matter.

To my knowledge no Ichneumonidæ have as yet been reported from the nests of bees. Besides, one of the parasites under consideration, *Grotea anguina*, is still the more remarkable from the fact that its larva, during a certain period of its development, leads the life of a vegetarian, subsisting for a few days on the mixture of pollen and nectar, the so-called bee-bread stored away by the bee. In regard to the habits of the Ichneumonidæ, Sharp (The Cambridge Natural History, Vol. V, p. 557, 1895) makes the following statement: "Although the Ichneumonidæ are perhaps the most purely carnivorous of all the great families of Hymenoptera, there is nevertheless reason for supposing that some of them can be nourished with vegetable substances during a part at any rate of the larval existence, Giraud & Cameron (Ent. Month. Mag. XIII, 1879, p. 200) having recorded observations that lead to the conclusion that some species of the genus *Pimpla* may inhabit galls and live on the substance, or juices thereof." It is interesting to note that our species *Grotea anguina*, whose larva during a

part of its life feeds on vegetable matter, is also a representative of the Ichneumonid subfamily Pimplinæ, while *Habrocryptus grænicheri*, the second parasite to be considered in this paper, belongs to the subfamily Cryptinæ.

Before dealing with the habits of these parasites, I prefer to briefly consider the habits of the bee *Ceratina dupla*, as observed in our surroundings. Both sexes pass the winter together in hollow stems, and copulate in the spring, but not very early. Last season (1904), which was an exceedingly late one, they were seen copulating on the flowers of the dandelion on May 19th and 20th, although some bees of other genera (*Andrena* and *Halictus*) were preparing their nests already at the end of April. In this same locality the *Ceratina* bees did not take up the work with their nests until about June 14th. The pithy stems of various plants are hollowed out, sometimes to a considerable depth, and cell after cell is furnished with the food supply and an egg, each cell being separated from its neighbors by a partition of its particles. Around the beginning of August the first young bees appear in the cells at the bottom of the nest, and these have to wait, as Comstock has observed, until all the others above them (sometimes 15 or more) have emerged, whereupon the whole family is led out of the nest by the mother bee. This does not take place before the second half of August or even the beginning of September. Comstock witnessed two broods in his surroundings, but in our region I have never seen these bees produce more than one brood.

Grotea anguina Cress.

Altogether 16 nests of *Ceratina dupla* containing either the eggs or the recently hatched larvæ of the parasite *Grotea anguina* were obtained.

The eggs of parasitic insects are often remarkable on account of their small size, and in this particular case the difference in size between the egg of the parasite and that of the bee is at once noticeable. The egg of the latter is about 2½ mm. long and 1 mm. broad, while that of *Grotea anguina* hardly reaches more than one-half of the length and one-fourth of the breadth of the bee's egg. As a rule the egg of the parasite is placed

lengthwise on top of the egg of the bee. The larva of the parasite may emerge earlier or a trifle later than the bee larva, but in either case it proceeds to suck the contents of the egg or of the young larva of the bee, mostly securing a hold on the anterior part. Within a short time a shrivelling of the egg or larva may be observed, and at the end of about 24 hours the anterior portion has been emptied of its contents. Thereupon the parasite turns around, and empties the remaining portion, so that at the expiration of 2 days on the average only the dry remains of the egg or larva of the bee are visible. The parasitic larva now takes up a position on the bee-bread and feeds on this for the next 3 or 4 days as eagerly as if it were a bee larva. It thereby increases considerably in size, and then forces its way through the partition into a neighboring cell, sooner or later killing and eating up the bee larva of this cell. It usually invades a third cell, also destroying the resident of the latter, and sometimes even a fourth cell is entered with the same result. At the age of 13 or 14 days the parasitic larva is full grown, measuring from 12 to 14 mm. in length, and it then begins to spin a cocoon. At first the pith particles, remains of destroyed bee larvæ, pieces of bee-bread, etc., are cleared out of the way for a length of 3 or 4 cm. so as to make room for the future cocoon, This having been done, a solid, hard partition is spun at the upper end of the canal, and one placed at the lower end. These are very resistent, and protect the larvæ from attacks coming from above or below. The chamber between these two plug-like partitions is furnished with a lining of a thin white membrane, the larva finally deposits its excreta at the lower end of the chamber, and lives throughout the winter as a "resting larva." In the spring pupation takes place, and the mature insect comes out in time to deposit its eggs in the nests of *Ceratina dupla*.

From the larvæ kept in a heated room throughout the winter 5 ♂ and 6 ♀ specimens of *Grotea anguina* were obtained, the earliest one, a ♂, emerging on March 9th, and the latest one, a ♀, on May 23rd. These insects appeared for good reasons earlier than those hibernating under natural conditions.

As a rule the egg of this parasite is deposited in the lowest

cell of the nest, less frequently in the next lowest, but occasionally also higher up. In the majority of the nests one cell only contains a parasitic egg, although in 4 out of the 16 nests 2 cells were infested. One nest, collected July 27th, 1903, was kept under observation with especial interest, as it contained 2 parasitic eggs on the egg of the bee in the lowest cell, and in addition to this a parasitic egg on the bee's egg in the adjoining cell. One of the parasitic larvæ in the lowest cell killed the other one, it then pursued the usual course of eating up the bee's egg and feeding on bee-bread, and then entered the next cell and there destroyed the somewhat smaller parasitic larva. This occurrence shows that the larva of this parasite instinctively attacks any other larva it may come in contact with inside of the nest.

The normal position of the egg of the parasite is on top of the bee's egg, but in two instances it was placed some distance from the latter on the bee-bread. This, however, did not interfere with the development of the parasite in either case, as the young larva crawled around until it reached the egg of the bee.

Habrocryptus grænicheri Vier.

On June 23, 1904, a *Ceratina* nest was found with a cell containing the small eggs of a parasite on the top of the bee's egg. This egg resembled rather closely that of *Grotea anguina*, and it was thought to belong to that species until the larva made its appearance. The form of the latter, as also its habits made it clear that we were dealing with some other parasite. Later on 5 additional nests with the eggs of this parasite, *Habrocryptus grænicheri*, were obtained, the last one on July 4th.

In size and form the egg of this species agrees with that of *Grotea anguina*, although it is a trifle smaller and somewhat more pointed behind. It produces a cylindrical larva with a large head and distinctly constricted segments, quite different from the more elliptical larva of *Grotea anguina* with a small head and without constricted segments. The feeding habits of the larva of this *Habrocryptus* are peculiar. It moves around on the egg and later on the young larva of the bee, now and then sucking superficially, but without inflicting any damage

to the egg or the larva, and evidently obtaining a small amount of food, as is shown by its very slow growth. These sucking movements are performed in a characteristic manner. The parasite brings its mouth-parts in contact with the surface of the egg or the young larva, and sucks for a few moments, whereupon it releases its hold with a jerky upward movement of the head and crawls forward a short distance to repeat the same performance. As already stated, the bee's egg shows no ill effects whatever, it produces a normal bee larva, and the latter partakes of its food-supply, and thrives as well as any other bee larva. A remarkable feature is the tolerance displayed by the bee larva towards the small parasite crawling around on its body and sapping its juices. The bee larva keeps on feeding and does not seem to be inconvenienced in the least by the presence of the parasite. On one occasion the latter was observed to take up a position on the side and within easy reach of the mandibles of the bee larva. It might have been destroyed with but little effort on the part of the bee larva, but nothing of the kind happened.

The parasitic larva increases very gradually in size, especially during the first 4 or 5 days of its life, but at the age of about 8 days it makes a serious attack on the half grown *Ceratina* larva, killing it, and sucking its contents. This brings about a rapid growth of the parasite. It soon invades a neighboring cell, destroys the bee larva therein, and occasionally raids 3 or 4 cells in the same way. At the age of about 13 days it is ready to spin its cocoon, and for this purpose it makes use of the space occupied by 2 or 3 of the broken up cells. The cocoon is hurriedly and lightly constructed, and is not protected by any plug-like partitions as in the case of *Grotea anguina*. About 6 days later pupation takes place, and at the end of 11 more days the perfect insect emerges. So that the entire development from the appearance of the larva to that of the imago is accomplished within 30 days on the average. From the 6 nests under observation 4 perfect insects were bred.

REVIEW.

Although these two parasites represent two distinct types of Ichneumonidæ, one being a *Pimpline* and the other a *Cryptine*,

they both adopt the same method of depositing their eggs on the egg of their host *Ceratina dupla*. But in the development of the larva at the expense of the egg or larva of the bee, each of them pursues a different course. The larva of *Grotea anguina* first increases its size by taking up the contents of the egg or young larva of the bee, but it is still rather small and feeds for several days on pollen and nectar before undertaking the task of breaking through the partition into a neighboring cell in search of a bee larva for food. It starts out as a carnivorous larva, thereupon it passes over to the diet of a vegetarian, and finally returns to carnivorous habits. *Habrocyptus grænicheri*, on the other hand, does not destroy the egg of the bee, and furthermore it spares the life of the bee larva until the latter has reached a considerable size. During more than one-half of its larval existence it partakes of a very small amount of food, derived superficially from the egg or the larva of the host, and it grows extremely slowly. But finally, by killing the bee larva and feeding on its contents it enters a period of rapid growth, and later on it invades one or more of the bee cells in pursuit of prey in exactly the same manner as does the larva of *Grotea anguina*. The time necessary to complete the growth of the larva is about the same in either of the species, being 12 or 13 days, but in the later development there is a great difference between the two. After completing its cocoon, the larva of *Grotea anguina* remains as a so-called resting larva in a state of inactivity until the spring of the following year, when it pupates, and appears as a mature insect at about the time the *Ceratina* bees start to build their nests. During this entire period, lasting at least 10 months, the resting larva might suffer injury from different sources (attacks of parasites, inclemency of the weather, etc.) if not properly protected, and we understand the importance of the strong defensive partitions erected at the upper and lower end of the cocoon chamber. Furthermore, the parasite does not always deposit its egg in the lowest cell, but sometimes as high up as the 7th cell, as observed in one of the nests. In such a case there may be several young bees emerging from the lower cells in late summer. These, in order to leave the nest would have to break

through the cocoon of the parasite, and thus endanger the life of the latter, if not held back by the very effective barrier of a defense partition. I have come across two old nests of *Ceratina* with an empty cocoon-chamber of the emerged parasite, and several dead *Ceratina* bees below the lower partition. The parasite is able to gnaw its way through the partition but the bees can not overcome such an obstacle.

There is no period of a "resting larva" in *Habrocryptus grænicheri*. Very shortly after the spinning of a cocoon a pupa is formed, and 11 or 12 days later the imago makes its appearance in advance of the young *Ceratina* bees. No necessity exists for the construction of defense partitions at the ends of the cocoon-chamber, the later being protected by the still occupied bee-cells, and the cocoon is a simple affair, as compared with that of *Grotea anguina*.

It takes *Grotea anguina* about a year to pass through its entire development, and of its habits throughout the year we are pretty well informed. Not so with *Habrocryptus grænicheri*. This parasite goes through the different stages within a month, but as to its doings and whereabouts during the remainder of the year we know nothing.

The mode of oviposition has not been observed in either of the species, although I have repeatedly seen *Grotea anguina* flying around in the neighborhood of the nests of *Ceratina dupla*. The ovipositor of *Habrocryptus grænicheri* is 3 mm. in length, and that of *Grotea anguina* over 4 mm., and in both species it is strong and well developed.

In the Eastern States several small Hymenopterous parasites have been bred from the nests of *Ceratina dupla*, but in our region the two Ichneumonids considered above are the only parasites of this bee so far observed. It has been shown that the larva of either of these Ichneumonids is a very destructive inhabitant of the bee's nests, always killing more than one of the bee larvæ. Such a parasitic larva when full grown is longer than a cell of the *Ceratina* nest, and consequently it has to occupy at least two of the cells. But notwithstanding the destructive tendency of the parasites, they do not seem to occur in sufficient number to interfere materially with the frequency of *Ceratina dupla*.

A List of Coleoptera.

Taken on the Summit of Mt. Seward, N. Y.

By C. O. Houghton.

On June 22, 1901, the writer, accompanied by Dr. A. D. MacGillivray of Cornell University, spent a short time in collecting insects upon the summit of Mr. Seward, one of the highest peaks in the Adirondack Mountains.*

This mountain lies ten or twelve miles to the east of Axton and rises to a height of about 4500 feet above the sea level. The sides are quite heavily wooded and in places very precipitous and the top is thickly studded with dwarfed spruce and balsam trees, so small that one can almost walk over the tops of them although they have attained a considerable age.

The trip to this mountain was made from Axton, on the last day of our outing at that place† and owing to the roughness of the road and the difficulties in the ascent only about a half hour was available for collecting purposes at the summit; and this was about all we could endure, for the black flies (*Simulium* sp.) simply swarmed there and rendered collecting well nigh impossible. In all of our collecting in the low lands about Axton, although tormented a great deal by the black flies and mosquitoes, we had experienced nothing like it and I think that fully as much time was expended in trying to fight off these pests as in our collecting operations.

Near the point where we reached the top and from which we did not venture far, as the trail ended there and the walking was very difficult, there was an old signal station which had been made use of some time before. This was simply a tower-like frame built up to a height of perhaps 15–20 feet with poles cut from the sides of the mountain, and upon this we secured a number of the beetles listed below. Our attention was chiefly directed to the collection of Coleoptera and indeed, with the exception of the black flies, but few other insects were seen.

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*Mt. Marcy, the highest, has an elevation of 5379 feet.

†See "A List of Insects Taken in the Adirondack Mountains, New York—I." By Alex. MacGillivray and C. O. Houghton—Entomological News, Vol. XIII, 1902, p. 247.

The following list embraces only those species taken on the summit, some of which were also taken at Axton;* when taken at both places it is so designated. The number following the name indicates the number of specimens taken on Mt. Seward. Most of the material was determined by Mr. Chas. Liebeck; the writer is responsible for the remainder.

STAPHYLINIDÆ.

Homalota sp., 1.
Alceocharid, undetermined, 1.
Xantholinus cepalus Say, 1.

COCCINELLIDÆ.

Harmonia picta Rand., 1.
Hyperaspis bigeminata Rand., 60-75.†

CUCUJIDÆ.

Læmophlæus convexulus Lec., 1.

CRYPTOPHAGIDÆ.

Cryptophagus sp., 3.

ELATERIDÆ.

Elater socer Lec., 2.
" *nigricans* Germ., 1.
Agriotes limosus Lec., 1.‡
Limonius pectoralis Lec., 9.
Corymbites spinosus Lec., 1.
" *appressus* Rand., 1.

BUPRESTIDÆ.

Dicerca divaricata Say, 1.‡

MALACHIDÆ.

Attalus nigrellus Lec., 1.

CLERIDÆ.

Thanasimus dubius Fab., 1.

CERAMBYCIDÆ.

Asemum moestum Hald., 4.
Tetropium cinnamopterum Kirby, 1
Pachyta monticola Rand., 2.‡
Acmæops pratensis Laich, 1.

CHRYSOMELIDÆ.

Galerucella decora Say, 1.‡
Disonycha pennsylvanica Ill., 1.

MELANDRYIDÆ.

Xylita lævigata Hellw., 1.

OEDEMERIDÆ.

Asclera puncticollis Say, 2.

CEPHALOIDÆ.

Cephaloon lepturides Newm., 1.‡

CURCULIONIDÆ.

Apion walshii Smith, 1.

SCOLYTIDÆ.

Pityophthorus materiarius Fitch, 1.
" *sparsus* Lec., 1.
Xyleborus cælatus Eich., 1.
Polygraphus rufipennis Kirby, 6.

Mr. and Mrs. E. B. Williamson, of Bluffton, Indiana, left home on December 31 for Guatemala, where they will collect insects. Mr. Williamson, who is favorably known for his papers on dragon flies, will pay special attention to that group.

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* By an oversight, all of the species taken on Mt. Seward were included in the list of Coleoptera taken at Axton and vicinity.

† These were all taken on, or close to, the old signal tower; many others could have been secured.

‡ Taken also at Axton.

A New Lac-Insect.

By T. D. A. COCKERELL.

The lac-insects (*Tachardia*) are for the most part members of the tropical fauna, and only a few species occur within the boundaries of the United States. In New Mexico *T. cornuta* Ckll. has long remained unique, and I did not expect to see a second species from that region. However, one has come to hand, and from a locality in which I have collected many times, without finding it. It must be extremely local; the explanation of this fact is sufficiently evident when on boiling up the material received, I find it severely attacked both by a fungus and a chalcidid.

Tachardia glomerella n. sp.

Crowded on the stems of *Gutierrexia glomerella* Greene the individuals coalescing in large numbers, but not (in the material received) entirely surrounding the stems; color very dark, with translucent shining orange-red rounded bosses, suggestive of guava jelly; scales smooth and roundec, without (even when young) any distinct projection such as is seen in *T. cornuta;* female when boiled and mounted colorless, about 3 mm. long; the crimson pigment produced on boiling very abundant, making the liquid extremely dark; caudal process yellowish-brown, only moderately chitinized, very broad basally, emitting no hairs from its apex; dorsal excretory processes cylindrically slightly broadened to the base, colorless.

Larva with antennæ 6-jointed, joints 3 and 6 long (6 longest), the others short, 4 and 5 with a stout spine subapically, 6 with a similar but larger spine at about the beginning of its last third; apex of 5 with two extremely long hairs, nearly twice as long as the sixth joint.

Found on the mesa near Little Mountain, Mesilla Valley, New Mexico, Oct. 6, 1904, by Dr. David Griffiths. Communicated by Professor E. O. Wooton.

Larger and darker than *T. cornuta*, and without the protuberance. Much darker and otherwise different from *T. fulgens* Ckll.; without the stripes and lateral foot-like processes of *T. fulvaradiata* Ckll. The *Gutierrezia* is very abundant in the Mesilla Valley.

PULVINARIA FICUS Hempel.—This coccid was recorded from the West Indies by Maxwell-Lefroy, who gave measurements of the antennæ and legs. An examination of the data presented shows that the species was not *P. ficus* at all, but *P. cupaniæ* Ckll. The true *P. ficus* is known only from Brazil.—T. D. A. COCKERELL.

The Spreading of Sphaeridium Scarabaeoides L.

By Frederick Knab.

This beetle is not only spreading through the Eastern States, as shown by Mr. C. O. Houghton, in the last volume of Ent. News, p. 310, but also to the westward. Upon a recent visit to Chicago I was suprised to see a fine series of this insect among the local captures in the collection of Mr. A. B. Wolcott. Although Mr. Wolcott has collected industriously about Chicago for a number of years, he had never seen this species until he met it on October 9, 1904. Upon that date he captured 23 specimens and could have taken many more. The specimens were all found on the lake-shore embankment in the northern part of the city where they doubtless crawled after being washed ashore. They were very active and would readily take flight after running a distance of one or two inches. Mr. Wolcott also captured a single specimen on November 2, 1904, so that it would seem that the species is established about Chicago, though evidently a very recent arrival. The above specimens show considerable variation in the color-markings of the elytra, and also in size, the specimens measuring from 4.5–7 mm.

It is an interesting feature in the spread of the species in the East that it seems to have invaded the Connecticut River valley from the southward. The writer took a single specimen near Mount Tom, Mass., in the summer of 1902, and the following season encountered it at various points in Hamden County, Mass., while the Rev. C. Crozet had already found the species plentiful about Hartford, Conn., in 1901.

I should be obliged to you if you would call attention in Notes and News to the fact that I shall be glad to examine and name any *Cryptocerate Hemiptera* sent to me, except *Corixas*. I am working on these groups for the North American fauna, and find it extremely difficult to get material. There is so very little known about them that even our accepted text books contain glaring errors. I should be glad to answer any queries regarding these insects.

I see that my friend, Mr. G. W. Kirkaldy, implies that I might give you some information regarding the method of "oaring" in water bugs. Quoting offhand from casual observation, I would say that *Belostoma*, *Corixa* and *Notonecta* move the hind legs together. *Ranatra* I have observed several times, and that curious insect paddles through the water in a very curious way. It uses the second and third pairs of legs, which it moves alternately, first one pair and then the other. It is a very slow and awkward swimmer.—J. R. de la Torre Bueno, 25 Broad St., N. Y.

ENTOMOLOGICAL NEWS.

[The Conductors of ENTOMOLOGICAL NEWS solicit and will thankfully receive items of news likely to interest its readers from any source. The author's name will be given in each case, for the information of cataloguers and bibliographers.]

To Contributors.—All contributions will be considered and passed upon at our earliest convenience, and, as far as may be, will be published according to date of reception. ENTOMOLOGICAL NEWS has reached a circulation, both in numbers and circumference, as to make it necessary to put "copy" into the hands of the printer, for each number, three weeks before date of issue. This should be remembered in sending special or important matter for a certain issue. Twenty-five "extras," without change in form, will be given free, when they are wanted; and this should be so stated on the MS., along with the number desired. The receipt of all papers will be acknowledged.—ED.

PHILADELPHIA, PA., FEBRUARY, 1905.

If in the evolution of species there had been no breaks or gaps it would be impossible to differentiate species, and even now complete series would make it very difficult to draw lines and separations. Our tools, so to speak, for the identification of species may be divided into figures, word descriptions and types. Some very distinguished entomologists believed in the former two tools only, as they did not care to go beyond the failure or the possibilities of the tools. A carpenter may say feet and inches are fine but millimeters are of doubtful value and micromillimeters perfectly idiotic. We can sympathize with that carpenter as micromillimeters are of no value to him. Figures and more particularly words may appear equally idiotic to some entomologists because they are inadequate to describe or differentiate some of the minute differences in insects. In other words, in some instances the study has gone beyond the standards of measurement. When we are stranded in this way recourse must be had to types, and that is why types are becoming more and more worshipped every day. Would it not be infinitely better to wait until the tools or standards of measurement become delicate enough to measure all differences and not let the *mihi itch* run away with our sound judgment?

To make the thing clearer and perhaps to illustrate and exaggerate a tendency we cite the following: The celebrated mammologist, Dr. Coyote, discovers a peculiar beetle among

some skins and is very curious to know the species and asks an entomological friend what it is. Mr. dear Dr. Coyote the genus to which that species belongs was monographed by Dr. Lectularius, his types are in the Royal Museum at Khartoum, and it is simply impossible to identify that species from either his figures or descriptions; you must personally examine his types.

Dr. Coyote lived in New York and his father was the owner of the Metropolitan Traction Company. So the next day at 8 A. M. he started for the State of Kordofan.

For the past two years I have noticed that the larvæ of one of our Geometrid moths, *Zerene* (*Cingilia*) *catenaria* was doing considerable damage to some of our small shrubs and bushes in certain localities. On August 15, 1903, in one place within the city limits I saw quite a large area where there was scarcely anything but bayberry bushes, that had the appearance of having been swept by a fire, the leaves having been completely eaten leaving nothing but the thick ribs, which had turned brown. At this time the larvæ were beginning to pupate, many having already done so. On July 22, 1904, in another locality, some five miles away, I found these larvæ in great abundance, being about half or two thirds grown. They had stripped many bushes and shrubs of their leaves; in this place their food was more varied; I noticed them on bayberry, sweet fern, low blueberry, young white birch trees, and on a few young oaks. About the same time I noticed them in still another locality about midway between the two last; here also they were feeding on bayberry, sweet fern and to some extent on young white birch trees, and had stripped many of them.—JAMES E. BILLSON, Providence, R. I.

Doings of Societies.

A meeting of the Entomological Section of the Academy of Natural Sciences of Philadelphia was held December 22, 1905. In the absence of the Director, Dr. Castle presided. Fourteen persons were present. The following were elected officers to serve for the year 1905: Director, Philip Laurent; Vice-Director, H. W. Wenzel; Treasurer, E. T. Cresson; Recorder, Henry Skinner; Secretary, Frank Haimbach; Conservator, Henry Skinner; Publication Committee, C. W. Johnson, J. H. Ridings.

HENRY SKINNER, *Recorder.*

A joint meeting of the Association of Economic Entomologists, the Entomological Section of the Academy of Natural Sciences of Philadelphia, the American Entomological Society and the Feldman Collecting Social was held in the Entomological rooms of the Academy of Natural Sciences of Philadelphia on December 29, 1904. Dr. Philip P. Calvert was elected Chairman of the meeting and Dr. Henry Skinner acted as Secretary. Among those present were:

Levi W. Mengel, Pennsylvania.
J. H. Matthews, Pennsylvania.
J. A. G. Rehn, Pennsylvania.
E. M. Walker, Ontario.
J. G. Saunders, D. C.
H. L. Viereck, Pennsylvania.
F. C. Bishopp, D. C.
C. S. Mead, Ohio.
H. A. Surface, Pennsylvania.
J. F. McClendon, Pennsylvania.
C. P. Gillette, Colorado.
James Fletcher, Ontario.
L. O. Howard, D. C.
C. O. Houghton, Delaware
W. S. Huntington, Pennsylvania.
M. V. Slingerland, New York.
E. L. Dickerson, New Jersey.
Henry C. McCook, Pennsylvania.
E. P. Felt, New York.
T. H. Schmitz, Pennsylvania.
D. M. Castle, Pennsylvania.
H. E. Summers, Iowa
G. M. Bentley, North Carolina.
Frank Benton, D. C.
Umekichi Nawa, Japan.
H. A. Snyder, Pennsylvania.
Frank Haimbach, Pennsylvania.
H. W. Wenzel, Pennsylvania.
F. Weigand, Pennsylvania.
W. J. Coxey, New Jersey.
C. T. Greene, Pennsylvania.
H. N. Poole, Pennsylvania.
G. M. Greene, Pennsylvania.
H. A. Wenzel, Pennsylvania.
J. F. Strauss, D. C.
A. A. Girault, D. C.
L. Martin, D. C.
J. B. Smith, New Jersey.
J. J. Repp, Pennsylvania.
E. S. G. Titus, D. C.
W. A. Riley, New York.
A. F. Satterthwait, Pennsylvania.
Herbert Osborn, Ohio.
W. D. Hunter, Texas.
W. M. Scott, D. C.
G. W. Martin, Tenn.
E. D. Sanderson, New Hampshire.
F. W. Rane, New Hampshire.
E. Daecke, Pennsylvania.
C. W. Fenninger, Pennsylvania.
J. C. Bradley, New York.
A. F. Burgess, Ohio.
A. L. Quaintance, D. C.
H T. Fernald, Massachusetts.
W. E. Britton, Connecticut.
F. L. Washburn, Minnesota.
C. E. Chambliss, South Carolina.
Henry Skinner, Pennsylvania.
P. P. Calvert, Pennsylvania.

Dr. Calvert gave an account of his method of work in the differentiation of the species and genera of Odonata for the Biologia Centrali-Americana.

Dr. Skinner spoke of the classification of the Hesperidæ based on the costal fold.

Prof. J. B. Smith discussed the value of characters used in classification and specially referred to his work on the genitalia of *Lachnosterna*.

Dr. L. O. Howard complimented Dr. Calvert on his work and referred to the value of larval characters. He also mentioned the utility of genitalic characters in elucidating other smaller differences.

Prof. Quaintance talked of his studies in the Aleyrodidæ, and said the classification of the family was based on larval characters.

Dr. Felt alluded to his recent work on mosquitoes and said exact illustration by the aid of photo-micrographs was of very great importance.

Prof. E. D. Sanderson said he had used a method similar to that of Dr. Calvert and found it very useful in the study of plant lice.

Dr. Henry C. McCook spoke eloquently of the great value of entomological studies and contrasted the early days with present universal recognition of the value of such studies.

Prof. H. E. Summers gave an account of a method of mathematical differentiation of species, trying to elucidate by a single character the expression of the others.

Mr. H. L. Viereck gave a resumé of his studies in Andrenidæ.

Mr. Rehn gave an address on the extralimital species of Orthoptera.

Mr. E. M. Walker commented on Mr. Rehn's communication and spoke of the Canadian species.

Dr. James Fletcher spoke lovingly of Canada and referred to his studies of rare Canadian butterflies, such as *Arg. astarte*, *Chion. alberta* and *Erebia vidleri*.

Prof. Quaintance said he wished to thank the Philadelphia Entomological Societies in behalf of the visiting entomologists for their hospitality and the good time shown them.

Dr. Calvert made some remarks on the value of organizing a National Entomological Society. After discussion, Mr. Bradley moved that a committee of three be appointed by the Chair to consider the matter. The committee appointed consisted of E. D. Sanderson, H. T. Fernald and J. C. Bradley. After the meeting some time was spent in social intercourse over the refreshments provided by the local committee.

HENRY SKINNER, *Secretary*.

A meeting of the Entomological Club of the American Association for the Advancement of Science was held in the rooms of the American Entomolgical Society, in the building of the Academy of Natural Sciences of Philadelphia, on Friday evening, December 30, 1904. The following were present: F. Benton, F. C. Bishopp, J. C. Bradley, D. M. Castle, C. E. Chambliss, M. T. Cook, E. Daecke, C. W. Fenninger, H. T. Fernald, W. J. Fox, C. P. Gillette, F. Haimbach, W. D. Hunter, L. Martin, A. D. MacGillivray, J. H. McGregor, U. Nawa, J. L. Phillips, A. L. Quaintance, J. A. G. Rehn, W. A. Riley, E. D. Sanderson, W. M. Scott, H. Skinner, R. M. Strong, H. E. Summers, E. S. G. Titus, H. L. Viereck, F. L. Washburn, H. A. Wenzel, H. W. Wenzel.

In calling the meeting to order the President, Dr. Henry Skinner, spoke of the meeting of the Entomological Club held twenty years before in the Hotel Lafayette, in Philadelphia. In the absence of the Secretary, Mr. E. V. Wilcox, Mr. J. C. Bradley was elected to take his place. Mr. H. A. Morgan was then elected President, and Mr. G. W. Herrick Secretary for the New Orleans meeting in 1905. Dr. Skinner was elected permanent Secretary, whose duty it should be to notify officers of their election and see that the business of the club is attended to.

At a joint meeting of the Association of Economic Entomologists and the American Entomological Society the previous evening, a committee had been appointed to report at this meeting on the advisability and means of establishing a national association of entomologists. The following report from this committee was read:

Report of the Committee on a National Association of Entomologists.

Your committee believes that there is room in America for an association of entomologists wherein all divisions and all branches of entomology shall be represented; an association which shall bring together all aspects of the science and throw its influence in favor of harmony and uniformity of practice. Such an association will be a success, however, only if it is established on a broad basis, and with a membership which shall be truly American rather than sectional.

Your committee therefore recommends the selection by this meeting of a committee of three, not members of any of the societies named below, whose duties shall be:

1. To communicate with the American Entomological Society, the New York Entomological Society, the Entomological Society of Washington, the Cambridge Entomological Club, the Entomological Society of Ontario, and the Pacific Coast Entomological Society, requesting each to select some member to represent his society on this committee.

2. As soon as four of these socities shall have elected members of the committee, the entire committee shall prepare a constitution and by-laws and plan of work for a proposed American Society of Entomologists, and report them at such time and place during 1905 as shall seem to them most likely to find the greatest number of entomologists assembled. Notice of this meeting to be first published in ENTOMOLOGICAL NEWS and the Canadian Entomologist.

3. This committee shall also arrange a program of discussion on some entomological topic for the proposed meeting.

(Signed) J. CHESTER BRADLEY,
H. T. FERNALD,
E. D. SANDERSON.

The President and Messrs. Summers and Titus spoke their appreciation of this movement. On motion the report was adopted, and the chair instructed to appoint a committee, which was done as follows: John B. Smith, C. P. Gillette and J. G. Needham.

The President spoke of the history of American entomology, especially of Thomas Say. The "Father of American Entomology" had lived under peculiar conditions; it was recorded that at times he had slept under specimens in the museum and lived on eight cents per day. The speaker exhibited a book which had belonged to Say and was presented to the American Entomological Society by his wife, Lucy W. Say. In this book was the imprint of a butterfly's wing which had been made by transferring the scales on to a pasted surface. The only extant type of any of Say's species was shown. The Academy of

Natural Sciences in Philadelphia had been censured for the loss of Say's types, but in justice to the Academy it was explained that at that time there was no entomologist in Philadelphia, and the Academy had sent the collection to T. W. Harris to be cared for, and while in his hands it was destroyed.

A set of several albums belonging to the American Entomological Society was shown, which contained photographs of very many of the older as well as contemporary entomologists. All were invited to contribute photographs who had not already done so.

Mr. Rehn exhibited some old and rare books from the library of the American Entomological Society and that of the Philadelphia Academy of Natural Sciences.

Mr. Cook stated that the Gundlach collection of insects was in excellent state of preservation in Havana, Cuba. Mr. Cresson and others in Philadelphia had at one time worked on this collection; twenty-three years ago it had been put in hermetically sealed boxes, only a few of which had become broken. There were over 2000 species. The speaker had the proof of a catologue of the Coleoptera which had never been finally published. Mr. Fox stated that many of Cresson's species were in Poey's collection. Mr. Cook said that that collection was in the University of Havana where were also Poey's fishes.

In speaking of the Comstock-Needham system of wing venation, Dr. MacGillivray stated that Prof. Comstock had been successful in homologising the wing veins in most of the different orders of insects. From the study of *Nemoura* he had derived a hypothetical primitive type of venation, which had closely corresponded with wings observed later. He showed by diagrams the definite way specialization by reduction had taken place, as illustrated by the Radius. In the case of saw-flies the radial sector arises from the base of the stigma while in the higher Hymenoptera it appears to arise from near the apex; but he had recently proven that in reality the base of the radial sector has been lost in all higher Hymenoptera, and the radial cross-vein has assumed its function. Mr. Daecke inquired how this system applied to such orders as Odonata, where the veins were very numerous. Dr. Mac-

Gillivray replied that in that case there had been another type of specialization, by addition, the definite methods of which were just as clearly demonstrable. Dr. Riley said that he had taken up the study of the system with a strong prejudice against it; but as he studied it he had become filled with enthusiasm. He mentioned the successful work that had been done in applying the system to different orders,—by Prof. Comstock in Lepidoptera, by Dr. Johannsen in Chironomidæ, by Dr. Needham in Odonata, by Dr. MacGillivray in Hymenoptera,—and said that their work showed that there was a solid ground work of truth, although details had yet to be worked out in different groups. Dr. MacGillivray stated that Prof. Comstock had derived a classification of the Lepidoptera from their wing venation, which had been corroborated by Mr. Bodine from a study of the scales, Mr. Kellogg from the antennæ and very closely by Dr. Dyar from a study of the tubercles of the larvæ.

Dr. Fernald complained of the inaccuracy and vagueness of the terms used in the question of mimicry. He placed on the board a tentative table classifying those phenomena. A similar table was placed on the board by Mr. Summers. The subject was discussed at length by Messrs. Skinner, Gillette, Bradley, Fox, Riley, Fernald, Summers, Rehn and MacGillivray.

Mr. Washburn spoke upon the attractions of Minnesota for the entomologist.

It was ordered that the minutes be published in both the Canadian Entomologist and the ENTOMOLOGICAL NEWS. The Club then adjourned.

J. CHESTER BRADLEY, *Secretary pro tem.*

At the meeting of the Feldman Collecting Social held December 21, 1904, at the residence of Mr. H. W. Wenzel, 1523 S. Thirteenth St., Philadelphia, ten persons were present.

Prof. Smith spoke of his work in connection with a glossary of entomological terms, and stated that the terms will be more than doubled as compared with the list issued by the Brooklyn Entomological Society some years ago, and will number at

least 5000. He referred to a recent work on insect variation and doubted the value of counting the spots and shape of maculation in 1000 specimens of one variable species. It simply indicated an indefinite variation which students already are aware of.

Discussed by Messrs. Castle, Harbeck and Wenzel, who spoke of the variation of *Cryptocephalus* maculation.

Prof. Smith remarked that in some seasons certain insects are more constant than usual, and that variations are very local.

Mr. Wenzel referred to variation in *Pterostichus*, which bears out Prof. Smith's remarks as to local variation. He also showed a piece of wood from southern Arizona which was perforated by insects. A specimen of *Zygops seminiveus* was found inside.

The incompleteness of analytical tables of species by Le Conte was referred to by Messrs. Wenzel and Smith. To use these tables properly it is necessary to have an almost complete collection of the genus in question, owing to the indefiniteness of most comparisons.

Mr. Harbeck recorded the capture of *Chlorops pulvera* from Fern Rock, Pennsylvania, May 28, 1904, and *Leskia thecata* at Clementon, N. J., September 5, 1904, both new to this region.

Mr. Laurent exhibited a butterfly showing effects of cyanide on the yellow coloring. He had examined the abdomens of 10 specimens of *Prionus laticollis* and found that they contained an average of $383\frac{1}{3}$ eggs.

Mr. Daecke showed a beetle, *Silvanus surinamensis*, which was found commonly in barrels of currants imported from Greece. WM. J. FOX, *Secretary*.

A meeting of the American Entomological Society was held December 22, 1904. Dr. Philip P. Calvert, President, in the chair. Fourteen persons were present. The following were elected to serve as officers for the year 1905: President, P. P. Calvert; Vice-President, H. W. Wenzel; Treasurer, E. T. Cresson; Recording Secretary, Henry Skinner; Correspond-

ing Secretary, Frank Haimbach; Curator, Henry Skinner; Librarian, J. C. Bradley; Publication Committee, E. T. Cresson, C. Few Seiss, B. H. Smith; Executive Committee, Philip Laurent, H. W. Wenzel, Frank Haimbach; Finance Committee, J. W. McAllister, C. S. Welles, D. M. Castle.

HENRY SKINNER, *Secretary.*

A meeting of the Entomological Section of the Chicago Academy of Sciences was held November 17th, at the John Crerar Library, nine persons present.

Dr. C. F. Adams, of the University of Chicago, took the floor, his subject being "American Dipterology." His talk was of a historical nature, naming the epochs through which the study of American Diptera had passed, its principal devotees and collections, and partly describing the work being done by present students.

Thomas Say, the so-called father of American Entomology, was the first American to write of the Diptera, but nothing of great magnitude or importance was accomplished until Osten-Sacken and Loew, both Europeans, entered the field. Their work extended over many years, and has proved invaluable to later students. Walker, of the British Museum, described a large number of species, but his descriptions were poor and many of the species proved to be synonymous with others previously described. The first real American Dipterist, as Dr. Adams put it, to enter this field of research was Prof. S. W. Williston in 1879. He described three new species in 1880, and published a monograph of the Syrphidæ in 1886. This was the first publication by an American Dipterist of a revisional character and gave new impetus to the study. The first edition of Prof. Williston's "Manual of North American Diptera," appeared in 1888, the latest revised edition, in 1896. Since then Prof. Williston has devoted most of his time and attention to tropical Diptera, and his latest work appears in the "Biologia Centrali Americana."

Present workers mentioned by Dr. Adams include:

Mr. D. W. Coquillet, of the National Museum, an earnest student and prolific writer.

Prof. W. M. Wheeler of the American Museum, N. Y., who has done considerable work in the Dolichopodidæ and Empididæ.

Mr. C. W. Johnson, of the Boston Society of Natural History, who is interested particularly in the Stratiomyidæ and Leptidæ.

Dr. J. B. Smith, whose work among the mosquitoes is well known.

Prof. J. S. Hine, of the University of Ohio, interested principally in the Tabanidæ.

Prof. Aldrich, of the University of Idaho, interested in the Dolichopodidæ and working on a catalog of North American Diptera.

Mr. A. L. Melander, of the Experiment Station, State of Washington, Empididæ.

Mr. C. T. Brues, of the American Museum, N. Y., Phoridæ.

Dr. O. A. Johannsen of Cornell University, Nematocera.

Dr. Adams considers the collections of the United States National Museum, the University of Chicago, Harvard University, and the University of Kansas as the best in the United States. The collection of the University of Chicago consists principally of the former Dr. Hough Collection, and is rich in Muscidæ. The material on Anthomyidæ is very good, having been revised by Stein, a European authority, and returned and includes numerous types. This collection is also rich in Micro-Diptera. In Chicago literature on the Diptera is very complete, as almost every book or periodical on the subject can be found at either the University of Chicago, the John Crerar Library, or in Professor Williston's private library.

Dr. Adams was heartily applauded at the close of his discourse. He was followed by Prof. Williston who added a few words, mentioning Edward Burgess, an American, who wrote on Diptera in 1878 or 1879, before Prof. Williston did and whose collection is now in the National Museum. Prof. Williston also stated that the National Museum contained over 100 types of *Stegiomyia*, and he considered it by far the most complete collection of American Diptera.

A. KWIAT, *Recorder.*

EXCHANGES.

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Wanted.—*Papilios* of the world. Must be perfect. Send list and state what you wish in exchange. C. F. Groth, 141 E. 40th St., New York.

Insects of all orders, chiefly from Kansas, Colorado, New Mexico and Arizona, for North Amercan species not in my collection. List of duplicates and desiderata on application. F. H. Snow, Lawrence, Kansas. (Prof. Systematic Entomology in the University of Kansas.)

Wanted, to complete files: Illinois State Laboratory Natural History, Bulletin, Vol. i, Nos. 3 and 4; Vol. iv, articles, 9, 14 and 15; Vol. v, articles 1 and 6. Many valuable exchanges to offer in different groups and subjects. James G. Needham, Lake Forest, Ill.

Wanted to exchange Lepidoptera. Write before sending list.—D. F. Berrenger, Fostoria, Ohio.

A few examples of *Microcyptus testaceus* Lec. for exchange. Desire Cleridæ and Cerambycidæ.—L. H. Joutel, 164 E. 117 St., N. Y. City.

Lepidoptera.—I have a large number of duplicates for exchange. Also pupæ, including *Triptogon modesta*, and other *sphinges*. Address Frank H. Engl, 1048 Byron St., Chicago, Ill.

I have a German correspondent anxious to exchange perfectly prepared and named European insects in all families, and orders for American insects. Address and introduction supplied. W. D. Kearfott, 114 Liberty St., New York.

Callosamia calleta cocoons to exchange—*Sphinx* pupæ desired.—W. T. Buxton, 17 Walter St., Somerville, Mass.

Wanted all kinds of native pupæ and cocoons, take also rare plants in exchange for exotic and native butterflies. Chas. F. Timm, 131 Ralph St., Brooklyn, N. Y.

Lepidoptera, duplicates. Fine tropical diurnals from Gilolo, Borneo, Jamaica, Brazil, Peru, W. Africa, Cuba, offered. Wanted desiderata from Haiti, P. Rico, Phillippines, Ecuador, Bolivia, Amazon River, etc. Walter Dannatt, 75 Vanburgh Park, London, England.

Lepidoptera.—I have 250 *Luna* cocoons to exchange for others or for exotic butterflies in paper.—M. Reyher, 1601 Willington Street, Philadelphia, Pa.

Cocoons. of *Callosamia cynthia* to exchange for other cocoons of North American moths.—Miss E. Avery, McPherson Library, Indiana Avenue and F. Street, Philadelphia, Penna.

Hemiptera and Hymenoptera from all regions of the earth, mounted or unmounted named or unnamed. Will give for these named and mounted material in other Orders from Southwestern United States, Nicaragua and Cuba.—C. F. Baker, Estacion Agronomica, Santiago de las Vegas, Cuba.

Lepidoptera.—Pupæ and cocoons of native Papilios, Sphingidæ and Saturnidæ wanted in exchange for pupæ of *Pap. ajax*, Cresphontes, *Cith. regalis, Anisota rubicunda, senatoria, stigma* and hybernating larvæ of *Apatura, celtis and clyton.*—Earnest Jeheber, 118 Reservoir Street, Lancaster, Pa.

Wanted.—A good second-hand insect cabinet in exchange for a Haynes Excelsior Guitar in fine condition, with case; original cost $35 00. Correspondence desired.—C. E. Montgomery, 10 Cabot Street, Portsmouth, N. H.

Pupae P. cresphontes, P. ajax, D. hylæus and other Lepidoptera for exchange. Wanted from original collectors only, Lycænidæ and Hesperidæ of U. S. and Canada with full data. W. W. Newcomb, M. D., 347 Trumbull Ave., Detroit, Mich.

Will collect next season all orders, chiefly Lepidoptera. Former correspondents invited to write. H. A. Kremers, White Bird, Idaho.

For exchange.—Several varieties of catocalæ of this locality for some of other localities. Also a large variety of other moths and butterflies. Dr. A. F. Hyde, Shelby, Ohio.

Loans of Lepidopterous freaks desired for purpose of photographing. Will give prints of same for privilege. Kindly write, stating what you have. I have a number of Entomological works to exchange for other books or N. A. Lepidoptera. Send for list. H. H. Newcomb, 43 Tremont St., Boston, Mass.

Diptera wanted from all parts of North America. Offer in exchange named European Diptera, named Indian Odonata and unnamed species of other orders from India. Could pay small price for collecting if from specially interesting localities. Must be on long pins, unset, in good condition with full data. E. Brunetti, General Post Office, Calcutta, India.

Lepidoptera.—Pupæ of *Phlegethontius quinquemaculatus* and *carolina, Papilio philenor* wanted.—George Franck, 1040 DeKalb Avenue, Brooklyn, New York.

Will exchange Californian Lepidoptera for any species of Hepialidæ, American or European, except *H. sequoilus, montana* and *behrensii.* Will also take imperfect specimens. F. X. Williams, 1015 Scott St., San Francisco, Cal.

Cosmia paleacea and *puncterina* wanted at once from all parts of North Amer. Also *Chrysophanus hypophlæus* from mountain districts, and many common Noctuidæ.—F. H. Wolley Dod, Millarville, Alberta, N W. T., Canada.

Wanted.—North American Lepidoptera, especially Catocalas and Sphingidæ, also exotic Papilios. Will pay cash or give good exchange. Herman J. Erb, 536 Plum Place, Union Hill, N. J.

Catocala and Moths of Pennsylvania. The undersigned will give good exchange in cash or specimens for the following Catocala: *Caiocala olivia, sancta, dulciola, mira, frederici, amestris, rosalinda, hermia, elda, dejecta,* and *luctuosa,* or for any moths of Pennsylvania that are new to my collection. Philip Laurent, 31 East Mt. Airy Avenue, Philadelphia, Pa.

Bred specimens of *Paphia troglodyta* and other diurnals in papers, also cocoons of bombycids and pupæ of sphinges for exchange. Wish *sphinges.* R. R. Rowley, Louisiana, Mo.

Lepidoptera: I have some good Noctuidæ in exchange for desirable North American Heterocera. *Xylina, Calocampa* and *Plusiidæ* especially desired. Henry Engel, Box 35, Oak Station P. O., Allegheny Co., Pennsylvania.

Lepidoptera to exchange for specimens new to my collection. Chas. Krueger, 1162 N. Lincoln Street, Chicago, Ill.

Promethea Cocoons to exchange for Lepidoptera or other cocoons. D. M. Fuller, 221 Lancaster St., Albany, N. Y.

Coleoptera.—*Ptinus fur, P. brunneus* and *Lomechusa cava* to exchange for Cicindelidæ. G. R. Pilate, 43 Wrae St., Dayton, Ohio.

Wanted.—North American Bibionidæ for study. Will name and return material sent, for the sake of learning the distribution. W. A. Hooker, care of Dr. H. T. Fernald, Mass. Agl. College, Amherst, Mass.

Exchange.—B. C. Lepidoptera in exchange for high grade guitar, typewriter, 3 A F. P. kodak, 4 B alvista or 5x7 Seneca No. 9 camera or like. Send description and conditions. Theo. Bryant, Wellington, B. C. Can.

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